



December 14, 2001

D. Wayne Hedberg, Permit Supervisor
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

RE: Final Draft of Mine Plan for Amendment to Cotter
Corporation's Papoose Mine, M/037/084, San Juan
County, Utah

Dear Mr. Hedberg:

Enclosed are the two copies requested of the final
draft for Cotter's Papoose Limestone Mine. We are
pleased that the expansion of the permit area has been
classified as an amendment.

Cotter wishes to thank yourself, Mr. Baker and Mr.
Jensen for your cooperation and approval of Cotter's
continued production of limestone in San Juan County.

If you have further questions, please contact me at
Cotter's Nucla, Colorado office at 970-864-7347.

Sincerely,
COTTER CORPORATION

Jon Showalter
Project Geologist

JS/tlm
limdog11.js

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Limestone Mine Plan
December 11, 2001 - Page 1

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I Overview

Cotter Corporation is conducting a large scale shallow open pit limestone mining operation in San Juan County. The present mine was upgraded from our initial small scale operation. The limestone deposit consists of the upper unit of the Pennsylvanian Hermosa Formation. The affected acreage is Utah State land which is controlled by a State Lease (ML-45609). Accordingly, the Division of State Lands and Forestry has been given a copy of this Amended/Revised mine plan. The mine site lies at an elevation ranging from 6650 to 6740 feet sloping from 8-16% to the west toward an unnamed intermittent tributary of Big Indian Wash and southwest toward Big Indian Wash. The surface is 20-30% bare limestone and 70-80% is covered with a very thin layer (usually less than 6") of soil. The mine area is vegetated at a moderate density by mature piñon and juniper trees with very sparse small shrubs and grass understory.

Limestone is the only mineral product to be mined. Any of the sparse topsoil to be stripped will be stockpiled and used later for reclamation purposes. The only waste materials generated consist of undersized product and sand grains which are screened out following the crushing cycle and minor amounts of coarser material which are rejected due to quality (excessively weathered material, silica nodules, etc.) Much of the fine rejects will be used to surface the access road and storage area and potentially sold elsewhere for road base. A market for the coarse rejects, such as riprap use, will also be sought in order to minimize the amount of waste rock left at the mine site. Annual production is currently about 50,000 tons of limestone necessitating mining approximately 64,000 tons of rock per year.

II Mine Plan

A. Operation

The anticipated sequence for the mining operation will be as follows:

1. Trees and brush will be stripped, windrowed or piled with a bulldozer.
2. The thin, sporadic soil will be stripped and stockpiled. Most of the topsoil will be stored on the uphill or northeast side of the stripped area to facilitate the ease in redistribution during final reclamation. A smaller amount will be used on the downhill side and piled in a berm for stormwater control. (see Exhibits F-1 and F-2)
3. Blast holes will be drilled with an air track drill. The drill machine will be supplied with a water injection system to prevent all but a very minute amount of dust to be produced.

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Limestone Mine Plan
December 11, 2001 - Page 2

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4. Explosives will be loaded and the holes shot approximately two to three times per year. In accordance with MSHA regulations, any possible area of approach will be closed by barriers or fences and be guarded during blasting. These fences and barriers will also hinder access to the high wall of the pit. It should be noted that the pit and highwalls are not expected to be more than 20 feet deep.
5. The broken rock will be mucked and trammed to the crusher by means of a rubber-tired loader.
6. Rock will be crushed and screened to a product size of minus 10" to plus $\frac{1}{2}$ ". This will require only a primary crushing operation employing a portable jaw crusher. Water spray devices will be used, as necessary, to minimize dust emissions during crushing. The particle size of the stockpiled material and any undersize reject pile should be large enough to preclude dust emissions due to wind. The undersize reject pile will be sprayed with water as necessary to control fugitive dust. Dust emissions will be regulated under Approval Order #DAQE-378-95 from the Utah Division of Air Quality.
7. The crushed product will be transported by conveyor or loader to the stockpile area. The equipment storage pad is of sufficient size (0.67 acre) to allow for truck turning and loading. The crushing and stockpile areas move southeastward, within the pit boundary, periodically as needed.

B. Access

Access to the mine site is off San Juan county road #370 (Lisbon Valley Road) approximately 1.3 miles southeast of the intersection with San Juan county road #306 (Big Indian Valley Road.) Approximately 460 feet of new access road 20 feet wide has been constructed in accordance with the encroachment requirements of the San Juan county road department engineer. A culvert of appropriate size has been installed to cross the drainage on the south side of County road #370. Construction of the remaining 425 feet of access road to the stockpile and mine area (885 ft. total access road) consisted of upgrading an existing old seismic exploration road, along with installation of two small culverts. The access road has been improved as needed. A dust suppressant will be applied as necessary to minimize the suspension of dust. The entire length of access road is located on the Utah State leased land. As a security measure, a gate has been installed on the northwest end of the mine area in order to deter access to the mine site by unauthorized persons.

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C. Acreage of Disturbance

The acreage disturbed by the existing operation is estimated to be:

A)	Access road	<u>Acres</u>
	1) new	0.16
	2) upgrade of existing road	0.20
B)	Equipment Storage Pad	0.67
C)	Topsoil Stockpiles	1.40
D)	Mine area and cleared area remaining	<u>17.57</u>
	Total number of acres presently disturbed	20.00
	Permit area remaining	<u>0.00</u>
	Total permitted area	20.00
	 Total new area to be permitted	 <u>27.00</u>
	Total area proposed for permitting	47.00

As an amendment in 1998, Cotter exchanged four acres on the southeast end of the then existing permit and added four acres to the southwest side to widen the pit (see Exhibit B dated January 2, 1998). Exhibit B (dated Sept 18, 2001) shows the newly proposed permit area.

D. Surface Facilities

When operations are in progress, a large truck van trailer with a control room, generator set and tool and lubricant storage room is on site. For security, this unit is moved to Nucla during extended periods of inactivity. A small camper trailer is always at the site which contains a portable toilet. A larger enclosed portable toilet may also be employed should on-site personnel requirements increase.

A fueling station has been established within a bermed and lined area to control spillage. (See Exhibit B)

E. Storm Water Control

During mining operations, the pit and crushing area will remain a sufficient distance east of the drainage to generally preclude the potential for sediment to enter surface waters of the state. Also, since the mining operation will be near the crest of the ridge, very little storm water runoff is anticipated to enter and subsequently exit the mine area. A catchment pond and a silt fence have been constructed below the pit area to minimize sedimentation from this area leaving the site and reaching the nearby drainage. An additional berm of topsoil has been placed along the downhill or southwest side of the disturbed area to route stormwater into the

Limestone Mine Plan
December 11, 2001 - Page 4

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pit and consequently toward the catchment pond. Any storm water is regulated under Storm Water Permit No. UTR000257, issued by the Utah Division of Water Quality.

All mine-related trash will be removed from the property by the completion of the operation. In addition, activities will be conducted so as not to present fire hazards. Portable toilet facilities will be provided during periods of operation.

III Exploration/Development Drilling

Cotter Corporation will, from time to time, conduct core drilling operations. Should the proposed drilling lie outside the permitted area, we will file for an exploration permit with the division.

IV Site Access Controls and Other Lessee Notifications

As previously mentioned, barriers, such as windrows of stripped trees, fences, gate and signs will be used to deter entry to the mining area by the public and livestock during mining and later reclamation as necessary. The other lease holders of this parcel of state land have been notified of Cotter's intent and application for revision or amendment to permit # M/037/084. These other lessees (Paul D. Redd of Monticello, Utah - Grazing Permit; Gulf Production Corp. of Oklahoma City, ML48278 - Oil, Gas and Hydrocarbons lease and Robert Lufkin of Phoenix, Arizona, ML46678 - Metalliferous Minerals Lease) will be allowed access to the mining area if needed. None of the fences will be constructed in such a manner as to deny livestock access to existing watering places. There will be no other disturbance to any of the other surface resources on this State lease outside the 47 acres covered by this permit.

V Water Use & Hydrologic Regime

All water to be used in this operation is expected to be purchased off-site and hauled to the mine. No ground water has been encountered in the mining operation. Since the mine site is near the crest of the ridge, there is insufficient recharge area to contribute ground water to the area, especially at the shallow pit depths of 20 feet or less. Furthermore, the limestone is impermeable, so recharge would only be through joints and fractures. The underlying sandstone is poorly cemented and very permeable, thereby allowing infiltration, so no seeps are anticipated even at the base of the limestone bed.

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VI Impact Assessment

As previously stated, no adverse impacts are expected to surface or ground water regimes. Soil resources impacts will be addressed under "Reclamation Plan" (following) as are slope stability and erosion control. There have been no state or federal threatened and endangered species encountered and no potential impacts are expected. Periodically, mining personnel are instructed to report any raptor sitings near the mine. Surveying and geologic personnel are also watching for raptor nesting sites, especially during springtime. To date, no nesting sites have been observed. No cultural sites have, as yet, been encountered within either the previously permitted area or the newly proposed area (see LAC Report 2001-27, attached).

VII Reclamation Plan

A. During Operation

Before any portion of the pit is abandoned, the high wall will be cut or backfilled with reject material to a slope of less than 1V:2H. The available topsoil will be spread, then seeded with the attached seed mixture (see exhibit G). Measures will be taken to avoid any unnecessary compaction prior to and during seeding.

Currently, the topsoil stockpiles exhibit a very rough texture due to the many "chunks" of limestone incorporated with it. At present, the stockpiles have naturally revegetated and have not shown any affects from heavy rainfalls.

A few of the original trees will be scattered across any reclaimed areas.

The original plan called for concurrent final reclamation of unused portions of the permit. However, the need for extra space to stockpile different products and spare equipment was not fully anticipated. Consequently, Cotter had decided to continue only with backfilling fines material against the northeast high wall as an enhancement to future reclamation. As more space becomes available. Cotter may complete reclamation in small unused areas (see revised Exhibit F-2, attached).

Current land use is for mining in disturbed areas and wildlife habitat and grazing in undisturbed areas.

The vegetation survey conducted in 1995 employed a line intercept method on two transects. Ground cover exhibited 13.5% vegetation, litter was 25.5%, rock/rock

Limestone Mine Plan
December 11, 2001 - Page 6

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fragments 24% and bare ground was 37%. The four predominant perennial species were Pinon Pine, Utah Juniper, Datil Yucca and Torrey Mormon Tea.

B. Final

Post mining land use will be for wildlife habitat and grazing. Reclamation and revegetation should result in much more diverse plant species and, consequently, much improved habitat.

After mining operations cease and it is determined the access road and stockpile area are no longer needed (that is if the Utah Division of State Lands and Forestry does not want the road left in place) they will be reclaimed according to state reclamation standards.

Also, any remaining reject material resulting from sizing operations will be utilized during final reclamation for erosion control measures, or in the case of fines reject, possibly as a subsoil before topsoil application.

An evaluation of methods for spreading of topsoil and seeding operations will determine to what depth the seed bed should be loosened. The disturbed area will be ripped (or otherwise scarified) as conditions allow.

Any seeding operations will occur in the fall (preferably in Mid-October) and will be applied by a broadcast seeder.

Remaining windrowed trees and any large rock left from sizing operations will be scattered and or piled across the reclaimed area concentrating on those areas more susceptible to erosion.

Trees and rocks will be picked up and placed utilizing either a front end loader or an excavator with "thumb" attachment. Application of 40 pounds per acre of nitrogen and 60 pounds per acre of phosphorous fertilizer will occur following seeding.

Berms and water bars may be placed, where needed, to prevent erosion prior to seeding. This will also prevent sediment delivery to the nearby drainage.

As a second option to the following variance (previously granted), any fine reject materials which remain after closure of operations can be distributed as a subsoil amendment before spreading topsoil. As the Division of Oil, Gas and Minerals suggested, maintaining at least one foot of this "subsoil" material could lessen the required

Limestone Mine Plan
December 11, 2001 - Page 7

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thickness of the topsoil. At time of closure, however much of this material remains, could be employed to achieve the maximum topsoil coverage.

C. Variance

As the mining operations advance to the southeast, less and less topsoil cover will be encountered. Due to this, Cotter Corporation requested a variance under rule R647-4-111. The reclamation plan (in areas of thin topsoil) will be to concentrate the available soils into "islands" or isolated areas to provide the necessary soil requirements for generation of vegetation. These "islands" will be evenly scattered throughout the mined area.

As indicated in the Large Mine Permit application (under III. Operation part 16, Vegetation) two transects using the Line Intercept method to survey cover averaged 24% rock/rock fragments. In some of the worst areas the topsoil may range between 1"-6" in thickness. When considering the rough nature of the limestone surface immediately underlying the topsoil, it may not be feasible to reasonably separate the minimal amounts of topsoil from the limestone as the mine advances to the southeast boundary of the permit area. Due to these difficulties, we may be lucky to create 12" thick "islands" on 50% of the reclaimed acreage. Even at this low estimate, we should manage a net gain in available grazeable vegetation when compared to the present conditions.

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Attachment "A"

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Cotter Corporation
Operator

Papoose
Mine Name

M-037-084
Permit Number

San Juan County, Utah

The legal description of lands to be disturbed is:

46.87 acres (MOL) within an area described:

Beginning at a point 1498 feet South 40° East of the Northwest corner of Section 36, Township 29½ South, Range 24 East, Salt Lake Principal Meridian, San Juan County, Utah;

thence 398 feet South 39°47' East;	thence 255 feet South 53°06' West;
thence 563 feet South 32°05' East;	thence 469 feet South 34°39' East;
thence 218 feet South 21°34' East;	thence 452 feet South 33°11' East;
thence 366 feet South 34°48' East;	thence 200 feet South 37°16' East;
thence 645 feet South 34°20' East;	thence 171 feet South 32°07' East;
thence 409 feet South 34°36' East;	thence 84 feet South 15°12' West;
thence 180 feet South 53°30' West;	thence 189 feet South 42°31' West;
thence 196 feet South 52°15' West;	thence 233 feet North 33°58' West;
thence 259 feet North 27°33' West;	thence 259 feet North 31°21' West;
thence 576 feet North 30°11' West;	thence 283 feet North 31°33' West;
thence 282 feet North 35°28' West;	thence 243 feet North 31°05' West;
thence 199 feet North 35°32' West;	thence 202 feet North 15°10' West;
thence 217 feet North 37°05' West;	thence 90 feet North 15°33' West;
thence 342 feet North 26°53' West;	thence 294 feet North 7°07' West;
thence 129 feet North 54°15' West;	thence 124 feet North 16°10' West;
thence 151 feet North 34°09' West;	thence 238 feet North 28°22' East;
thence 343 feet North 41°33' East;	the place of beginning.

In addition, an access road has been constructed and includes another 0.16 acres falling within an area 10 feet on either side of a centerline beginning 1513 feet South 40° East of the Northwest corner of Section 36, Township 29½ South, Range 24 East, Salt Lake Principal Meridian, San Juan County Utah;

thence 508 feet North 47° East; thence 164 feet North 81° East;
thence 112 feet North 67° East; thence 102 feet North 51° East,
thence 79 feet North 9° East, where the road connects to San Juan County Road 370.

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EXHIBIT G

Recommended Revegetation list for Cotter Corporation's Papoose Mine, M/037/084.

Common Name	*Rate lbs/acre (PLS)
Bluebunch Wheatgrass	2.0
ELLA, Thickspike Wheatgrass	2.0
POAM, Big Bluegrass	0.5
Bozoisky Russian Wild Rye	1.5
Indian Ricegrass	2.0
Ladak Alfalfa	0.5
Lewis Flax	0.5
Palmer Penstemon	0.5
Small Burnett	1.0
Wyoming Big Sage	0.2
Fourwing Saltbrush	2.0
Rubber Rabbitbrush	0.5
Forage Kochia	0.5
Rocky Mountain Penstemon	0.5
Total pounds per acre	14.2

*Rate is recommended for broadcast seeding. If drill seeded, reduce rate by 1/3.

Prepared by DOGM on September 13, 2001

Jon Showalter
COTTER CORP
P.O. Box 700
Nucla, CO 81424

DATE RECEIVED: 08/14/95
DATE REPORTED: 08/21/95

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Colorado State University
Soil, Water and Plant Testing Laboratory
Natural and Environmental Sciences Bldg - A 319
Fort Collins, CO 80523

(970) 491-5061 FAX: 491-2930

BILLING: \$1950.00

ATTACHMENT B

RESEARCH SOIL ANALYSIS

Lab #	Sample ID #	pH	mmhos/cm EC	Lime Estimate	<div>organic matter % O.M.</div>	ppm							Texture Estimate
						NO ₃ -N	P	NH ₄ HCO ₃ -K	DTPA Extract	Zn	Fe	Mn	
R936	Papoose Topsoil	8.0	0.6	High	4.8	2	2.8	205.0	0.6	25.2	9.0	2.4	SandyLoam

Lab #	Sample ID #	Plant Species	Irrigated	---Recommendation---		
				N	P ₂ O ₅	K ₂ O
R936	Papoose Topsoil	Native Grasses	No	40	60	0
R936	Papoose Topsoil	Grasses	Yes	120	80	0

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EXHIBIT D

ECOLOGICAL SITE DESCRIPTION

PINYON JUNIPER WOODLAND

COLORADO FIELD OFFICE

Ecological Site Name: Shallow Loamy Mesa Top PJ #141

Ecological Site Number: GF - 039XY141CO
GF - 048XY141CO

Date: 03/01/95

Author's Initials: TO/CS/JA/DR/JH/BK

PART A: PHYSICAL CHARACTERISTICS

1. Soil Narrative:

- a. The soils in this site are shallow, well drained, and occur on gently sloping mesa tops. They formed in loess, colluvium and residual sandstone. Permeability is moderate above the bedrock. The available water capacity is very low. Erosion by water is slight to moderate and the hazard of erosion by wind is moderate. The natural soil fertility is low.
- b. List of Soil Taxonomic Units or Soil Mapping Units for all soils included in this site:

SSA	Soil Series	Surface Texture	Slope Ranges	Phase
671	Longburn	CBV Sandy loam	1-12%	-
671	Arabrab	Fine sand	1-12%	-

2. Landscape Factors

a. Physiography:

1. Elevation: Low: 7000 ft. High: 7800 ft.
2. Percent Slope: Low 1% High 12%
3. Nearly level to gently sloping areas on mesa tops.

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3. Climate Factors

- a. Hard freeze free period: 180 to 220 days (24°F)
- b. Freeze-free period: 160 to 180 days (28°F)
- c. Frost-free period: 145 to 170 days (32°F)
- d. Mean annual precipitation: 15 to 18 inches
- e. Mean annual air temperature: 47 to 50°F
- f. Mean annual soil temperature: 49 to 52°F
- g. Moisture and temperature distribution:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PPT												
HIGH	2.9	2.2	2.7	1.8	1.7	1.1	2.9	2.7	2.1	3.0	2.0	2.7
MEAN	1.9	1.4	1.7	1.2	1.1	0.6	1.9	1.8	1.3	1.7	1.3	1.8
LOW	0.8	0.5	0.5	0.6	0.4	0.1	0.8	0.6	0.6	0.6	0.7	0.6
PERCENT	11	8	10	7	6	3	11	10	7	10	7	10

TEMP												
HIGH	39.6	43.8	49.8	59.8	70.5	81.8	86.9	84.3	77.4	65.7	50.2	41.1
MEAN	29.2	33.8	38.0	46.5	56.4	66.6	72.3	70.1	63.6	52.7	39.2	31.0
LOW	18.8	21.8	26.3	33.2	42.3	51.5	57.7	55.8	49.8	39.7	28.2	20.9

4. Vegetation Factors - Climax Plant Community:

a. Site Description Narrative:

When this site is at or near its potential, pinyon pine and Utah juniper dominate the site and make up over 80 percent of the plant community. Understory production is very limited and provides marginal amounts of forage for livestock and or wildlife. It does provide good escape cover and thermal cover for deer. When the tree canopy cover exceeds 30 percent, diversity, both plant and animal, drops to its lowest level.

When the tree canopy ranges from 10 to 30 percent, a wide variety of grasses, forbs and shrubs will also be present in addition to the pinyon pine and Utah juniper. Muttongrass, needleandthread, Indian ricegrass and bottlebrush squirreltail are the principal grasses. Forbs usually present include Wrights birdbeak, silvery lupine, rocky mountain penstemon, Crandall penstemon and Hoods phlox. Shrubs usually present include cliff fendlerbush, Torrey mormontea, low rabbitbrush, datil yucca, antelope bitterbrush, mountain mahogany and Utah serviceberry. During this tree canopy stage, diversity of plant and animal species will reach its peak.

When the tree canopy cover ranges from 0-10%, the previously mentioned species will generally be present with the grasses and forbs producing 80 to 90 percent of the total production. When the tree canopy level is reduced by fire, chaining and/or application of herbicides, forage production will be at its highest level for big game animals as well as domestic livestock.

b. Vascular Plant Community Composition (by air-dry weight):

Plant Symbol	Common Name	Productivity by Canopy Classes		
		0 -15 %	15 -30%	30 - +%
GRASSES AND GRASSLIKES				
POFE	MUTTONGRASS	30 - 35	20 - 25	5 - 10
ORHY	INDIAN RICEGRASS	10 - 15	5 - 10	0 - 1
STCO4	NEEDLEANDTHREAD	5 - 10	0 - 5	0 - 1
ELEL5	FOXTAILGRASS SQUIRRELTAIL	0 - 5	0 - 5	0 - 1
FORBS				
LUAR3	SILVERY LUPINE	1 - 5	1 - 5	0 - 1
COWR2	WRIGHT'S BIRDBEAK	0 - 1	1 - 3	0 - 1
SPCO	SCARLET GLOBEMALLOW	1 - 3	1 - 3	0 - 1
PEST2	ROCKY MOUNTAIN PENSTEMON	1 - 3	1 - 2	0 - 1
PECR5	CRANDALL'S PENSTEMON	1 - 3	1 - 2	0 - 1
ERUM	SULFUR BUCKWHEAT	1 - 3	1 - 2	0 - 1
PHHO	HOODS PHLOX	0 - 1	0 - 2	0 - 1
COUM	BASTARD TOADFLAX	0 - 1	0 - 2	0 - 1
POAV	PROSTRATE KNOTWEED	0 - 1	0 - 1	0 - 1
PEPU7	ROCK GOLDENROD	0 - 1	0 - 1	0 - 1
PPFF	OTHER PERENNIAL FORBS	0 - 1	0 - 1	0 - 1
SHRUBS & HALFSHRUBS				
FERU	CLIFF FENDLERBUSH	0 - 3	0 - 5	0 - 2
EPTO	TORREY MORMONTEA	0 - 3	0 - 5	0 - 1
CHHU2	LOW RABBITBRUSH	0 - 5	0 - 5	0 - 1
YUBA	DATIL YUCCA	0 - 3	0 - 5	0 - 1
PUTR2	ANTELOPE BITTERBRUSH	0 - 3	0 - 5	0 - 1
CEMO2	TRUE MOUNTAIN MAHOGANY	0 - 3	0 - 5	0 - 1
AMUT	UTAH SERVICEBERRY	0 - 3	0 - 5	0 - 1
TREES				
PIED	PINYON PINE	0 - 5	5 - 15	20 - 60
JUOS	UTAH JUNIPER	0 - 10	10 - 20	20 - 60

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c. Total Annual Understory Production by Canopy Class in an Average Year:

(all production below 4 1/2 feet, air-dry)

0 - 10% 650 to 800 lbs. per acre
10 - 30% 300 to 600 lbs. per acre
30 - 40% 50 to 150 lbs. per acre

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d. Total Annual Production by Canopy Class in an Average Year:
(includes all overstory and understory production, air-dry)

0 - 15% 700 to 900 lbs. per acre
15 - 30% 600 to 800 lbs. per acre
30 - 40% 450 to 700 lbs. per acre

e. Animal Preference Values by Species 1/

ANIMAL PREFERENCE

Plant Symbol	Common Name	C	S	H	D	E	P	G	S	S
								B	B	M

GRASSES AND GRASSLIKES

POFE	MUTTONGRASS	P	P	P	P	P	P	D	D	D
ORHY	INDIAN RICEGRASS	P	P	P	P	D	D	D	P	P
ELEL5	BOTTLEBRUSH SQUIRRELTAIL	D	D	D	D	D	D	D	D	D
STCO4	NEEDLEANDTHREAD	P	D	P	P	D	D	U	D	D

FORBS

COWR2	WRIGHT'S BIRDBEAK	U	U	U	U	U	U	D	D	D
LUAR3	SILVERY LUPINE	U	D	U	P	P	D	P	P	P
SPCO	SCARLET GLOBEMALLOW	D	D	D	P	P	P	D	P	P
PEST2	ROCKY MOUNTAIN PENSTEMON	D	D	U	D	D	D	D	D	D
PECR5	CRANDALL PENSTEMON	U	D	U	U	D	D	D	D	D
ERUM	SULFUR BUCKWHEAT	U	D	U	D	D	D	D	D	D
PHHO	HOODS PHLOX	U	U	U	U	U	U	U	U	U
COUM	BASTARD TOADFLAX	U	U	U	U	U	U	U	U	U
POAV	PROSTRATE KNOTWEED	U	U	U	U	U	U	U	U	U
PEPU7	ROCK GOLDENROD	U	U	U	U	U	U	U	U	U

SHRUBS & HALFSHRUBS

AMUT	UTAH SERVICEBERRY	D	D	U	D	D	U	D	D	D
FERU	CLIFF FENDLERBUSH	U	D	D	U	D	U	U	U	U
EPTO	TORREY MORMONTEA	D	R	D	D	P	P	D	D	D
CHHU2	LOW RABBITBRUSH	U	D	U	U	D	N	D	D	D
YUBA	DATIL YUCCA	D	D	D	D	D	D	D	D	D
PUTR2	ANTELOPE BITTERBRUSH	P	P	D	P	P	P	P	P	P
CEMO2	TRUE MOUNTAIN MAHOGANY	D	P	U	D	P	P	D	D	P

TREES

PIED	PINYON PINE	U	U	U	U	U	U	P	P	P
JUOS	UTAH JUNIPER	U	U	U	D	D	U	D	P	D

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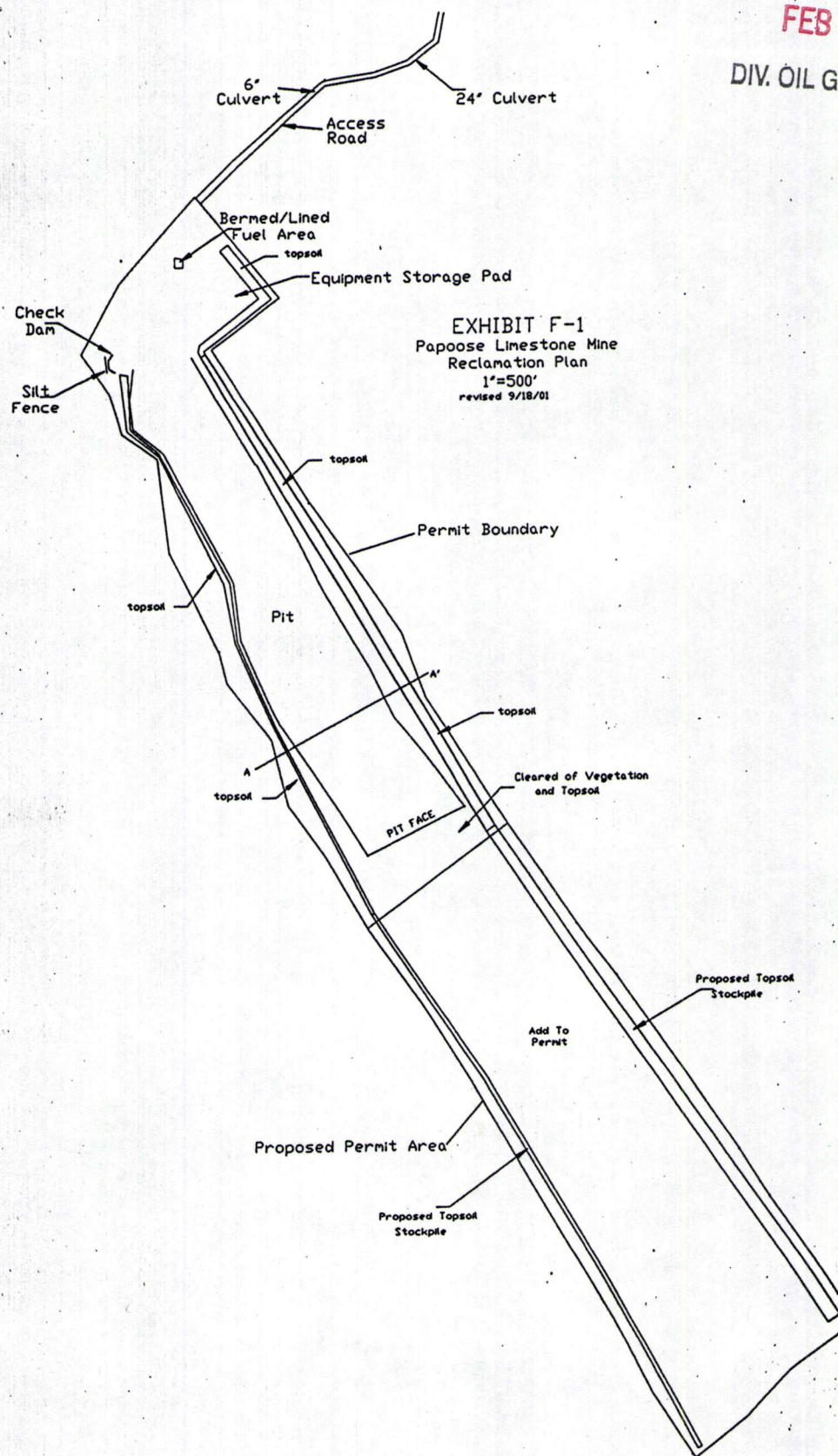
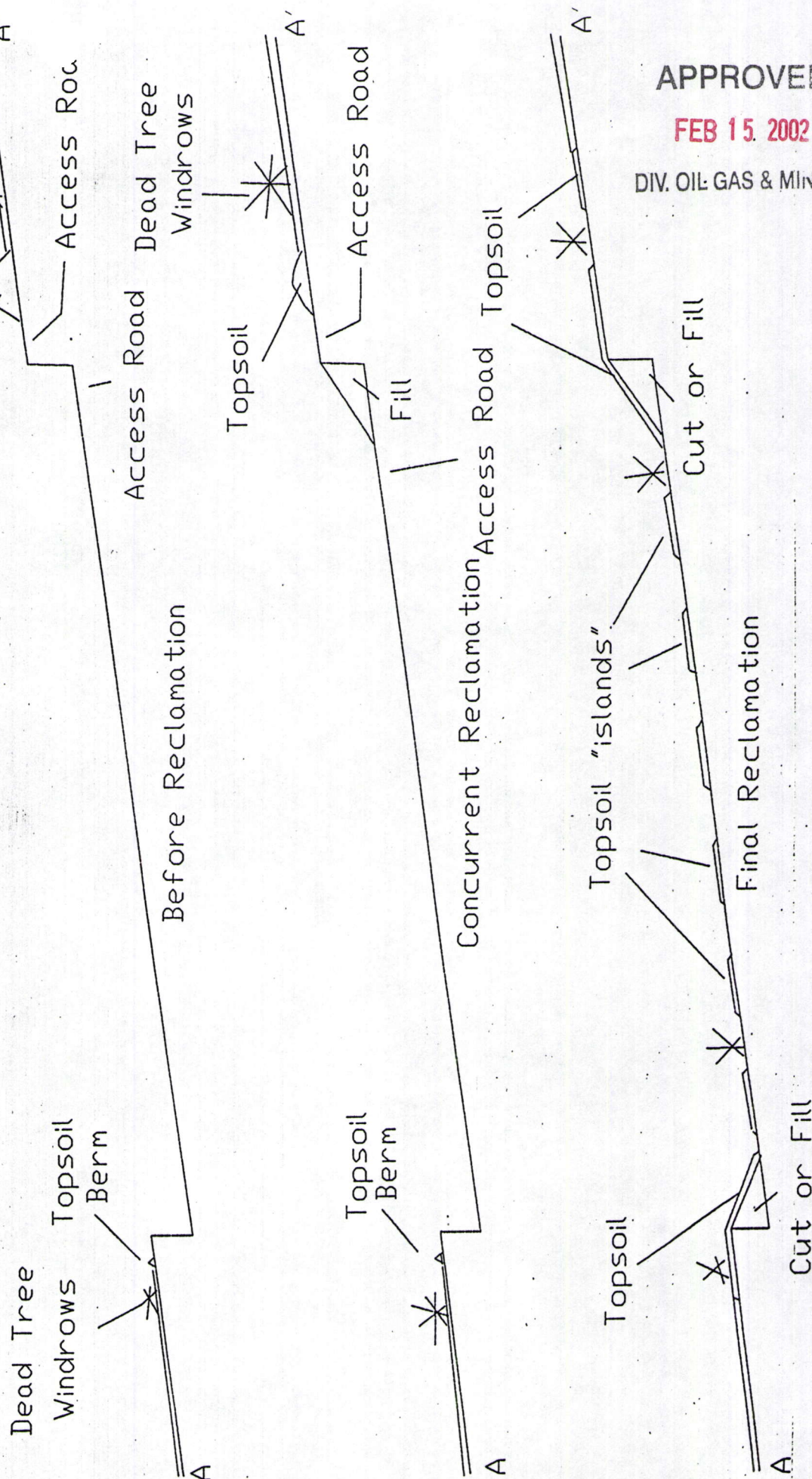


EXHIBIT F-2 Papoose Limestone Mine Reclamation Plan Cross-Section

1"=60'

Looking Northwest

revised 11/8/01



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EXHIBIT G

Recommended Revegetation list for Cotter Corporation's Papoose Mine, M/037/084.

Common Name	*Rate lbs/acre (PLS)
Bluebunch Wheatgrass	2.0
ELLA, Thickspike Wheatgrass	2.0
POAM, Big Bluegrass	0.5
Bozoisky Russian Wild Rye	1.5
Indian Ricegrass	2.0
Ladak Alfalfa	0.5
Lewis Flax	0.5
Palmer Penstemon	0.5
Small Burnett	1.0
Wyoming Big Sage	0.2
Fourwing Saltbrush	2.0
Rubber Rabbitbrush	0.5
Forage Kochia	0.5
Rocky Mountain Penstemon	0.5
Total pounds per acre	14.2

*Rate is recommended for broadcast seeding. If drill seeded, reduce rate by 1/3.

Prepared by DOGM on September 13, 2001

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**ARCHAEOLOGICAL SURVEY OF
COTTER CORPORATION'S PROPOSED
PAPOOSE LIMESTONE MINE SECOND EXPANSION
SAN JUAN COUNTY, UTAH**

LAC REPORT 2001-27

by

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May 15, 2001

Utah State Permit
U01-LA-0251s

Prepared For:

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ABSTRACT

The archaeological survey of Cotter Corporation's proposed Papoose Limestone Mine Second Expansion was conducted by personnel of La Plata Archaeological Consultants on May 10, 2001. The project is located in San Juan County, Utah, on lands owned and managed by the Utah School and Institutional Trust Lands Administration. A rectangular block, approximately 2150 feet long by 500 feet wide (24.7 acres), was surveyed to allow for the expansion of the existing limestone mine. No archaeological sites or other cultural resources were encountered during the survey and archaeological clearance is recommended for the project.

INTRODUCTION

On May 10, 2001, the archaeological survey of Cotter Corporation's proposed Papoose Limestone Mine Second Expansion was conducted by Steve Fuller of La Plata Archaeological Consultants. The survey was requested by John Showalter of Cotter Corporation.

The proposed mine expansion is located entirely on lands managed by the Utah School and Institutional Trust Lands Administration. The project is within San Juan County, Utah, about six miles south of the town of La Sal and near the divide between the heads of Lisbon Valley to the east and Big Indian Wash to the west (Figure 1). The project is west of the County Road between Lisbon Valley and La Sal.

The proposed mine expansion is within T29.5S, R24E, Section 36, E ½ SW ¼ and W ½ SE ¼, and is included on the USGS Lisbon Valley, Utah 7.5' series topographic map (Figure 2). The Papoose Limestone mine was first developed in 1994 (Fuller 1994) and then expanded to the southeast in 1995 (Fuller 1995). The second expansion, covered in this report, begins at the current mining area and extends southeastward and includes a rectangular parcel approximately 2100 feet long by 400 feet wide, plus a 50 ft buffer zone on the three undeveloped sides (see Figure 2). A small portion of this area map overlap with the archaeological survey previously conducted for the first mine expansion examined in 1995 (Fuller 1995). No archaeological sites or other items of cultural interest were encountered during the survey. Archaeological clearance is recommended for the Papoose Limestone Mine Second Expansion.

PHYSIOGRAPHY AND ENVIRONMENT

The proposed mine expansion traverses a fairly steep west facing slope overlooking the upper end of Big Indian Wash. The project area is typified by exposed limestone bedrock which is highly fractured, weathered, and blocky. A thin layer of reddish silty wind-blown sediment covers portions of the limestone with depths ranging from 0 to maybe 25 cm. The limestone is dense and uniform with no areas of apparent chert nodules. The limestone is a member of the Pennsylvanian Age Hermosa Formation.

Figure 2. Project Area
 USGS Lisbon Valley, NM 7.5'
 T29.5S, R24E, Section 36
 San Juan County, Utah

30
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Existing Papoose Mine and road (LAC Reports 9438 and 9514)

Proposed mine expansion

Figure 2. Project Area
USGS Lisbon Valley, NM 7.5'
T29.5S, R24E, Section 36
San Juan County, Utah

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Vegetation within the project area consists mainly of unchained pinyon and juniper with a generally sparse understory of ephedra, broad and narrowleaf yucca, snakeweed, and grasses.

SURVEY PROCEDURES

The files located at the Utah Division of State History were checked by telephone in May, 2001, by La Plata Archaeological Consultants and Utah Division of State History personnel. Previous records searches of the same area conducted in 1994 and 1995 indicated that several archaeological surveys have been conducted in the vicinity of the project area, mostly for seismic lines. There is only one previously recorded site in the vicinity of the project area. The site, 42SA11460 (Harden 1982), is a large lithic scatter with ground stone tools located about 1000 feet or more to the southwest of the proposed mine expansion.

Utah Division of State History files also indicate that the Morrison Formation outcrops in the area and that large vertebrate fossils may be encountered. The Morrison Formation may be exposed on the east side of Lisbon Valley, about one mile east of the project area, but that area is separated by the Lisbon Fault from this project area. Much earlier Pennsylvanian Age limestone dominates the project area and no significant vertebrate fossils would be expected.

The block survey of the proposed mine expansion and buffers was conducted by a single archaeologist who walked a rectilinear pattern of parallel transects spaced about 15 or so meters apart. A total of 24.7 acres were inventoried for cultural resources for this project.

SURVEY RESULTS

No archaeological sites or other cultural resources were encountered during this survey, nor were any cultural resources encountered during the previous two surveys in this immediate area..

CONCLUSIONS AND MANAGEMENT RECOMMENDATIONS

The archaeological survey for Cotter Corporation's proposed Papoose Limestone Mine Second Expansion was conducted on May 10, 2001, by personnel of La Plata Archaeological Consultants. The project is located on lands managed by the State of Utah. No archaeological sites or other cultural resources were encountered during the project and archaeological clearance is recommended for the proposed mine expansion.

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REFERENCES

Fuller, Steven L.

1994 *Archaeological Survey of Cotter Corporation's Proposed Papoose Limestone Mine and Access Road, San Juan County, Utah.* LAC Report 9438. La Plata Archaeological Consultants, Dolores.

1995 *Archaeological Survey of Cotter Corporation's Proposed Papoose Limestone Mine Expansion, San Juan County, Utah.* LAC Report 9514. La Plata Archaeological Consultants, Dolores.

Harden, Patrick L.

1982 *Archaeological Survey of Seisdata's Seismic Lines in the Lisbon Valley Area, San Juan County, Utah.* LAC Report 8227. La Plata Archaeological Consultants, Dolores.